REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

Disposition of Claims

Claims 1-13 are pending in the present application. Claims 1, 5, and 10 are independent. The remaining claims depend, directly or indirectly, from claims 1, 5, and 10.

Rejection(s) under 35 U.S.C § 102

Claims 1-13 were rejected under 35 U.S.C. § 102 as being anticipated by the document titled "IC Power distribution Challenges" by Bobba *et al.* (hereinafter "Bobba"). For the reasons set forth below, the rejection is respectfully traversed.

The present invention is directed to a method for data analysis of power modeling for a microprocessor. In order to perform dynamic power simulation of a microprocessor, the outputs of a simulator are selectively processed to generate summary information for power behavior of the microprocessor (*see* Specification, paragraph [0017]).

Figure 3 shows three types of summary information generated from power simulation information data (80) in accordance with one embodiment of the present invention. As shown with respect to Figure 3, three types of summary information, including single-cycle summary data (50), multi-cycle power (MCP) (52), and multi-cycle derivative (MCD) (54), may be generated from power simulation data (80) (*see* Specification, paragraph [0018]).

Single cycle summary data (50) is used to observe rises and falls in power data generated from the simulation during each cycle. In the summary, peak and low absolute values are associated with a specific cycle. The derivative is defined as the difference between two

particular associated power values in the simulation (*see* Specification, paragraph [0019]). As a single cycle may not accurately reflect power dissipation in some simulations, a multi-cycle power (MCP) (52) may be used to provide average values over multiple cycles and report the peak average value. In this scheme, at every cycle, power data from the current cycle is included with the previous data in a run. Then, the average is calculated (*see* Specification, paragraph [0020]). As subsequent cycles may continue in a given direction, the change in power from one cycle to the next may not cover the full range of the change. In such a case, a multi-cycle derivative (MCD) (54) may be used to collect data showing a full range of power changes. In this embodiment, a multiple cycle derivative is defined as a group of single cycle power values that progress primarily in one direction (*see* Specification, paragraph [0021]).

Accordingly, independent claim 1 requires generating summary information relating to single cycle behavior of the power data, wherein the power data is associated with a specific cycle in the power modeling simulation. Claim 5 requires generating summary information relating to multiple cycle behavior of the power data, wherein the power data is associated with multiple cycles in the power modeling simulation. Claim 10 requires generating summary information relating to a multi-cycle derivative of the power data, wherein each power data is associated with at least one cycle in a simulation, and wherein the multi-cycle derivative is a derivative of at least two particular power data in non-successive cycles. Further, claims 1, 5, and 10 require analyzing the power modeling simulation using the respective summary information.

Bobba, in contrast to the present invention, is directed to techniques for estimating the supply voltage that can be used in the design of a power delivery network of an integrated circuit (*see* Bobba, abstract). Bobba focuses on several areas related to integrated circuit power distribution. Specifically, Bobba focuses on power grid analysis techniques, decoupling

capacitors, estimating power dissipation at high levels of abstraction, and an analysis of power-performance trade-offs. (*see* Bobba, page 643, right column, last line – page 644, left column, line 5).

In analyzing a power grid, Bobba states that transient voltage variations at nodes in the power grid and long-term reliability of interconnects in the power grid are areas of main concern. Bobba describes problems of supply voltage variations, electromigration, and design techniques for a reliable power grid (*see* Bobba, page 644, left column, Section 2, lines 3-19). *Nowhere does Bobba show or suggest generating summary information relating to power data.*

Additionally, Bobba describes estimating power dissipation at high levels of abstraction such as architectural and register transfer levels (*see* Bobba, page 647, section 4, lines 1-11). Bobba states that circuit level simulations, which estimate power dissipation given a set of input vectors, are part of power estimation at lower levels of abstraction (*see* Bobba, page 647, right column, paragraph 3). However, Bobba focuses on techniques for *estimating* power dissipation at high levels of abstraction. Bobba does not discuss generating summary information relating to analyzing a power simulation of a microprocessor. Bobba is completely silent with respect to generating summary information relating to single cycle behavior of the power data, generating summary information relating to multiple cycle behavior of the power data, or generating summary information relating to a multi-cycle derivative of the power data, as required, respectively, by independent claims 1, 5, and 10 of the present application.

In view of the above, Bobba fails to show or suggest the present invention as recited in amended independent claims 1, 5, and 10. Thus, amended independent claims 1, 5, and 10 are patentable over Bobba. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places the present application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 03226/073001; P5521).

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Respectfully submitted,

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AMENDMENTS TO THE DRAWINGS

Applicant hereby submits five replacement drawing sheets for Figures 1-5 and asks that these replacement drawing sheets be accepted by the Examiner as Formal. No new matter has been added by way of these replacement drawing sheets. Also, a separate letter to the Official Draftsperson is enclosed.